

DEPARTMENT OF TRANSPORTATION  
PROFESSIONAL SERVICES MANAGEMENT UNIT  
REQUEST FOR LETTERS OF INTEREST

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) DESIRES TO ENGAGE QUALIFIED PRIVATE CONSULTING FIRMS FOR THE PURPOSE OF PROVIDING QUALITY ASSURANCE FOR HIGH SPEED DATA COLLECTION AND PROCESSING FOR THE PAVEMENT MANAGEMENT UNIT OF THE ASSET MANAGEMENT BRANCH.

**The primary firm shall be Pre-qualified to perform services for the Pavement Management Unit (High Speed Data Collection and Processing and Quality Assurance for High Speed Data Collection). The work codes required are:**

- **00404 – High Speed Data Collection and Processing**
- **00405 – Quality Assurance for High Speed Data Collection**

A complete description of the purpose, background, and statement of need is attached at the back of this advertisement.

Any firm wishing to be considered must be properly registered with the Office of the Secretary of State, and if required, with the North Carolina Board of Registration for Professional Engineers and Land Surveyors. The use of corporate subsidiaries will not be allowed in the performance of this work. The firm must have the financial ability to undertake the work and assume the liability. The selected firms will be required to furnish proof of Professional Liability insurance coverage in the minimum amount of \$1,000,000. The firm must have an adequate accounting system to identify costs chargeable to the project.

**SMALL PROFESSIONAL SERVICE FIRM (SPSF) PARTICIPATION**

The Department encourages the use of Small Professional Services Firms (SPSF). Small businesses determined to be eligible for participation in the SPSF program are those meeting size standards defined by Small Business Administration (SBA) regulations, 13 CFR Part 121 in Sector 54 under the North American Industrial Classification System (NAICS). The SPSF program is a race, ethnicity, and gender neutral program designed to increase the availability of contracting opportunities for small businesses on federal, state or locally funded contracts. SPSF participation is not contingent upon the funding source.

The Firm, at the time the Letter of Interest is submitted, shall submit a listing of all known SPSF firms that will participate in the performance of the identified work. The participation shall be submitted on the Department's Subconsultant Form RS-2. RS-2 forms may be accessed on the website at <https://apps.dot.state.nc.us/quickfind/forms/Default.aspx>.

The SPSF must be qualified with the Department to perform the work for which they are listed.

Real-time information about firms doing business with the Department and firms that are SPSF certified through the Contractual Services Unit is available in the Directory of Transportation Firms. The Directory can be accessed by the link on the Department's homepage or by entering <https://apps.dot.state.nc.us/vendor/directory/> in the address bar of your web browser.

The listing of an individual firm in the Department's directory shall not be construed as an endorsement of the firm.

## PREQUALIFICATION

The Department maintains on file the qualifications and key personnel for each approved discipline, as well as any required samples of work. Each year on the anniversary date of the company, the firm shall renew their prequalified disciplines. If your firm has not renewed its application as required by your anniversary date or if your firm is not currently prequalified, please submit an application to the Department **prior** to submittal of your letter of interest. An application may be accessed at <https://apps03.dot.state.nc.us/vendor/prequal>. Having this data on file with the Department eliminates the need to resubmit this data with each letter of interest.

Even though specific DBE/MBE/WBE goals are not required for this project, the Department of Transportation is committed to providing opportunity for small and disadvantaged businesses to perform on its contracts through established Department goals. The Firm, subconsultant and subfirm shall not discriminate on the basis of race, religion, color, national origin, age, disability or sex in the performance of this contract.

## EVALUATION

All qualified firms who submit responsive letters of interest will be considered.

The evaluation of firms submitting letters of interest for this project will be based on the following considerations and their respective weights:

1. The firm's understanding of high speed data collection and processing and approach to provide the required services; 50%
2. The firm's experience and staff to perform the type of work required; 50%

After reviewing qualifications, if firms are equal on the evaluation review, then those qualified firms with proposed SPSF participation will be given priority consideration.

## FORMAT FOR SUBMISSION OF A PROFESSIONAL SERVICES MANAGEMENT UNIT LETTER OF INTEREST

All letters of interest are limited to twenty-five (25) pages (RS-2 forms are not included in the page count) inclusive of the cover sheet, and shall be typed on 8 1/2" x 11" sheets, single spaced, one sided. **ONLY ELECTRONIC LETTERS OF INTEREST WILL BE ACCEPTED.** Letters of interest containing more than twenty-five (25) pages will not be considered.

Letters of Interest should be submitted in .pdf format using software such as Adobe, CutePDF PDF Writer, DocuDesk- deskPDF, etc.

One copy of the Letter of Interest should be sent through NCDOT's FTS system **as a .pdf file**: [psmu-411@ncdot.gov](mailto:psmu-411@ncdot.gov) . The FTS system will send you an electronic receipt when your LOI is

downloaded to PSMU's server. **Paper copies are not required.** The subject line should contain the PEF's Name, and "2014 LOI for QA High Speed Highway Data Collection".

If an interested firm does not have an FTS account they should send a request through regular e-mail to [psmu-411@ncdot.gov](mailto:psmu-411@ncdot.gov) . A response will be sent via the FTS system that will provide a login username, password, and login procedures.

### **Section I - Cover/Introductory Letter**

The introductory letter should be addressed to Mr. Scott D. Blevins, P.E., Manager of the Professional Services Management Unit. Said letter is limited to two (2) pages and should contain the following elements of information:

- Expression of firm's interest in the work;
- Statement of whether firm is on register;
- Date of most recent private engineering firm qualification;
- Statement regarding firms possible conflict of interest for the work; and
- Summation of information contained in the letter of interest . **including an email address and telephone number for the firm's contact person.**

### **Section II - Evaluation Factors**

This section is limited to ten (10) pages and should contain information regarding evaluation and other factors listed in the advertisement such as:

- Identify project personnel qualifications and experience as related to this work;
- Unique qualifications of key team members;
- Identify type and location of similar work performed within last seven (7) years;
- Understanding of project approach; and
- Any innovative approaches to be used.

**Note:** If a project team encounters personnel changes, or any other changes of significance dealing with the company, NCDOT should be notified immediately.

### **Section III - Supportive Information**

This section is limited to thirteen (13) pages and should contain the following information:

- Capacity Chart/Graph (available work force);
- Organizational chart indicating personnel to be assigned by discipline;
- Resumes of key personnel;
- Names, classifications, and location of the firm's employees and resources to be assigned to the advertised work; and
- Other information.

## APPENDICES-

### CONSULTANT CERTIFICATION Form RS-2

**Completed Form RS-2 forms SHALL be submitted with the firm's letter of interest.**

This section is limited to the number of pages required to provide the requested information.

Submit Form RS-2 forms for the following:

- Prime Consultant firm (Prime Consultant Form RS-2 Rev 1/14/08), and;
- ANY/ALL subconsultant firms (Subconsultant Form RS-2 Rev 1/15/08) to be or anticipated to be utilized by your firm.

Complete and sign each Form RS-2 (instructions are listed on the form).

**Please include the work codes on the RS-2 forms.**

In the event the firm has no subconsultant, it is required that this be indicated on the Subconsultant Form RS-2 by entering the word "None" or the number "ZERO" and signing the form.

The required forms are available at:

<https://apps.dot.state.nc.us/quickfind/forms/Default.aspx>.

Private Consulting Firms are invited to have letters of interest for Quality Assurance of High Speed Data Collection and Processing **FTS-ed** to the Professional Services Management Unit by **12:00 p.m. on August 5, 2014**. **Letters of interest received after this deadline will not be considered.**

**Firms submitting letters of interest are encouraged to carefully check them for conformance to the requirements stated above. If letters of interest do not meet ALL of these requirements or if they are sent by any other means other than NCDOT's FTS system, or to any address other than psmu-411@ncdot.gov they will be disqualified. No exception will be granted.**

*Advertised July 15, 2014*

The e-mail address is:

**psmu-411@ncdot.gov**

Any questions concerning the advertisement or scope should be directed to Scott Blevins, PE, at sblevins@ncdot.gov or by telephone at 919-707-7132.

If you feel information provided is inadequate to submit a letter of interest, please contact Mr. Blevins.

The firm(s) selected will be notified by **August 26, 2014**. Notification will not be sent to firms not selected.

The firm(s) selected will be listed on the Internet at <https://connect.ncdot.gov/letting/Pages/Private-Engineering-Firm-Advertisements-.aspx> by **August 27, 2014**.

## I.A. Description of Work Required

### GENERAL

#### I.A.1. Statement of Needs

##### *I.A.1.a.*

The CONSULTANT is to represent the agency in assuring that the High Speed Data Collection and Processing effort meets the requirements of the contract. The CONSULTANT should be thoroughly familiar with the RFP/RFOI issued for High Speed Data Collection and Processing, the NCDOT High Speed Data collection Manual, as well as any additional final requirements and standards that are developed in agreement with the data collection contractor.

##### *I.A.1.b.*

An annual start up activity should be conducted, reported and approved by NCDOT before production data collection occurs. At a minimum, the startup activity consists of the following:

##### *I.A.1.b.i.*

An initial pavement data collection/processing validation, verification and calibration exercise that shall be carried out on no more than 20 roadway sections selected by NCDOT. During this exercise, precision and bias tests will be conducted for all data items.

##### *I.A.1.b.ii.*

Calibration procedures, camera angles and coverage, data calculation methods and standard operating procedures used by the data collection contractor will be verified.

##### *I.A.1.b.iii.*

All start up work shall be reported to NCDOT at one time in a well-documented, concisely written report. The CONSULTANT shall review and report to NCDOT on the adequacy and acceptability of the results, based on limits provided in the data collection RFP.

##### *I.A.1.c.*

The CONSULTANT shall develop a quality assurance sampling plan to assure that all data elements meet contract requirements. These elements include, but are not limited to, images, international Roughness index (IRI), rutting, and cracking. This plan must include sampling methodology for each data element, tests to be performed and acceptance criteria. It is expected that the data collection/automated distress contractor will submit results to NCDOT as each Division is completed.

The CONSULTANT should consider using Division by Division sampling for monitoring purposes and should also produce an assessment of overall, statewide quality for the final product. The quality assurance plan must be approved by the NCDOT project manager prior to beginning production data review.

***I.A.1.d.***

The CONSULTANT shall apply their plan on an ongoing basis. If their comparisons to the data collection contractor show consistent errors, they should notify the NCDOT Project Manager immediately so that corrective action can be taken. The goal is to collect high quality data and minimize retesting as much as possible. All incidents of identified retesting or equipment recalibration must be reported through the project manager.

**I.A.2. CONSULTANT Reporting Requirements**

During the process of data collection and/or processing of pavement condition data, the CONSULTANT shall provide the NCDOT Project Manager the following:

***I.A.2.a.***

Weekly and monthly reports of all quality assurance checks and any reports of needed retesting or recalibration.

***I.A.2.b.***

Quality Assurance report on the Start Up process as outlined above. A letter report to the NCDOT Project Manager will suffice.

***I.A.2.c.***

Quality Assurance plan for Division by Division and statewide tracking.

***I.A.2.d.***

Division reports on quality assurance within a Division.

***I.A.2.e.***

Statewide final quality assurance report outlining sampling, Division by Division quality assurance for each data type, and statewide overall quality assurance results. This report should include recommendations, if any, to improve the quality of data in the next round of data collection and processing and any areas where increased quality assurance may be desirable.

**I.A.3. Quality Assurance Personnel Requirements**

The CONSULTANT shall provide adequate staff to perform the quality assurance checks on an on-going basis. Resumes of key personnel shall be included in the proposal.

***I.A.3.a. Quality Assurance Manager***

A Quality Assurance Manager shall lead all work on the contract, including development of the Quality Assurance Plan, development of sampling frequencies and methods, review of the start-up process by the data collection contractor, review of the data collection and analysis processes, and verification of the adequacy and accuracy of the collected data. This individual must have a strong background in statistics and have a minimum of 5 years of pavement data collection and quality assurance experience.

## TASKS

### Task 1 - Agency Representation

The CONSULTANT will represent the STATE and its interests in ensuring that only complete and accurate pavement distress data is provided to the PMS and that all vendor delivered data meets the requirements of the High Speed Data Collection and Processing contract.

The CONSULTANT becomes familiar with the services offered by the selected data collection vendor, and through discussion with them understands their data collection proposal.

The CONSULTANT will review the final contract awarded to the selected data collection vendor as well as any additional standards or requirements that the STATE has provided. The CONSULTANT will review the vendor submitted quality control plan and SOPs.

Specific task 1 items include:

1. Project Start-up Meeting in North Carolina
2. Review selected data collection vendor contract, QA procedures and standard operating procedures
3. Review existing distress manuals
4. Participate in the Annual Close-out meeting and provide a year-end report

### Task 2 - Development of Quality Assurance Plan

The CONSULTANT will develop a specific Data Quality Management plan for the overall control and delivery of data for this project. The development of a sound data sampling plan will be carried out to assure that the data collected is representative of the section of pavement the sample ultimately represents. The sampling plan will define the extent (such as percent of pavement sections or samples within a section) and frequency for quality checks. The anticipated intervals and benchmarks are provided in the following table.

Data Element	Sampling Interval	Benchmark Criteria
Images	5%	95%
IRI	Weekly	+/- 5% of Average
Rutting	Weekly	+/- 5% of Average
Faulting	Weekly	+/- 5% of Average
Cracking	5%	TBD

The sampling intervals will be based upon random selection techniques applied to each lot of data delivered. If the delivered lots are not division specific, then a stratified sampling will be completed to assure each division is equally represented.



A final key element of a QA plan is to have established feedback loops for any corrective actions. When the QA process reveals random errors in the data, the data must be reprocessed. However, when systematic errors are identified, large quantities of data, even those previously sampled might need to be reprocessed. Corrective action must be taken on all potentially affected data. In addition, the corrected action must be documented and shared with the entire project team through the STATE's Project Manager with the goals of ensuring reliable data delivery to the STATE, and that the same error is not repeated in subsequent deliverables.

The quality control plan developed will be submitted to and approved by the STATE's Project Manager prior to beginning production data collection and review.

Additional Task 2 items include:

1. Review existing PMS decision trees and evaluate the sensitivity of distress type, severity and quantity.
2. Provide three (3) ratings of all distress control sites as part of the rater pool data.
3. Set-up and receive training on the data collection vendor rating software.
4. Develop and/or update the Data Quality Manual and determine allowable control limits for the distress QA efforts, based upon analysis of the rater pool data.

### **Task 3 - Annual Startup Activities**

The annual start up activities must be conducted, reported, and approved by the STATE prior to production data collection. This activity is critical to assuring the quality of the pavement data collection. Up to 20 roadway sections selected by the STATE will be used for the startup activities. The select data collection vendor will be required to make multiple data collection passes over each calibration section. Bias will be based on the runs made by the data collection vendor vehicles.

The CONSULTANT will observe the entire data collection vendor process ranging from sensor calibrations through data delivery to ensure the SOPs are being followed. Forward and downward images will be checked to confirm proper camera angles and coverage, and data calculation methods verified. This effort will be completed on two (2) data collection vehicles.

### **Sensor Data**

The selected data vendor will need to perform a minimum of five (5) repeat runs on each of the calibration sections with each data collection vehicle. Once this data has validated that the equipment meets the requirements of the RFP, the CONSULTANT will then utilize the multiple run information to determine the precision and bias of the collected data.

By collecting multiple runs on the same site, with the same equipment, at nearly the same time, valuable information is generated regarding the repeatability of the sensor data. When combined with the "ground truth" data (to be provided by the STATE) it will be the basis for determining the statistical precision and bias limits.

### ***Distress Data***

Distress control sites must be established for use in developing control of the rating process. A consensus rating of the control sections will be on workstations using data and imagery provided by the data collection vendor. This should be a combination of the STATE's, the CONSULTANT's and data collection personnel. This will provide the "ground truth" to the actual distresses observable in the field. This will allow determination of variability and provide a means for establishing criteria for future QC/QA reviews based on images. Both distress and rater variability will be evaluated from these control site ratings. A sound methodology for controlling the rating process results from this exercise. Precision and bias statements are developed using this methodology.

### ***Annual Startup Report***

The results of the control site reviews, evaluations, and precision and bias statements will be thoroughly documented in one succinct report submitted to the STATE's Project Manager. The report will provide all data collected, processed, and analyzed and will include a recommendation on the suitability of the equipment, personnel, and processes to begin production level data collection. This document will include the determined precision and bias statements for both within truck and between truck variation analysis for IRI, rutting, faulting and cracking measurements.

Specific task 3 items include:

1. Provide suggestions and recommendations to the STATE on the number and type of control sites for each data element.
2. At the STATE's discretion, provide on-site personnel during the data collection startup process for two (2) vehicles, includes observing equipment calibration and data collection efforts.
3. Determine precision and bias statements for IRI, rutting faulting and cracking measurements from the control site data analysis.
4. Develop and submit a comprehensive startup report, prior to any production level data collection.

### ***Task 4 - On-going Independent Quality Assurance of Reported Data***

As each batch of pavement data is delivered by the selected data collection vendor, the CONSULTANT will provide the incremental data QA review. Initially, the CONSULTANT anticipates this review being completed on 5% of the delivered data. Data will be sampled randomly from each lot of data delivered, with each of the 14 divisions sampled equally.

The quality of collected IRI, rutting, and faulting data will be evaluated weekly via control site checks. The CONSULTANT will request and review this data at random times to ensure that the process is being completed, and confirm that the equipment continues to perform as designed.

The CONSULTANT's staff will provide independent, external quality assurance of the pavement distress data. This QA review will be performed to ensure an adequate level of data accuracy is being achieved. Checks will be made of the STATE's distress values, to ensure the results provided are consistent, reliable, and useable. The plan for performing quality assurance testing on the delivered pavement distress data will be carried out by trained pavement distress raters completing distress take-offs from the digital images for the sampled sections. This method allows for rapid QA checks in a safe and efficient manner. The QA rating will be

conducted using manual interpretation methods by two (2) independent raters for each homogenous section. Two 50% sample ratings will be collected, and the index results averaged for use in comparison with the vendor results. This independent sample approach adds further validity to the process.

Weekly and monthly reports of all quality assurance checks, including the need to recalibrate or retest will be provided to the STATE's Project Manager. Ongoing quality assurance results will also be provided in both division and statewide summary formats. A final QA report outlining sampling, division-by-division QA results for each data type, as well as statewide results will be provided, along with suggested improvements for future data collection to the STATE's Project Manager.

Specific task 4 items include:

1. Review 100% of the delivered data for completeness and reasonableness.
2. Review 5% of the delivered distress data for conformance with the DQM.
3. Review weekly/monthly sensor calibration results.
4. Provide weekly status reports to the STATE's Project Manager.
5. Provide monthly status reports to the STATE's Project Manager.
6. Provide QA feedback reports by division or more frequently if needed.
7. Provide division by division summary QA reports.
8. Provide statewide summary QA report.

### **I.B. Subconsultant Utilization**

NO subconsultants are permitted under this AGREEMENT.

### **I.C. Subcontracts**

NO subconsultants are permitted under this AGREEMENT.

### **I.D. Work Standards**

The CONSULTANT will perform the studies, prepare documents and reports, and develop plans in accordance with all applicable State and Federal regulations and safety guidelines.

### **I.E. Deliverables**

The CONSULTANT will submit to the STATE the work products outlined in the detailed SCOPE OF WORK developed for each task. All deliverables will be in accordance to guidelines of the STATE.

### **I.F. Guidelines**

All work under this contract shall be performed in accordance with all applicable guidelines published by the STATE, and in accordance with the SCOPE OF WORK developed for each task.

### **I.G.**

When performing field work on or adjacent to public streets or highways, it shall be the responsibility of the CONSULTANT to provide traffic control including flagmen and/or any other necessary devices in accordance with the Manual on Uniform Traffic Control Devices" (Current Edition), the "N. C. Department of Transportation - Construction and Maintenance Operations Supplement to the M.U.T.C.D." and the "North Carolina Survey Crew Safety Supplement" to protect workers, equipment, and the traveling public.